

REMARKS

Claims 1-12 are in the application. Claim 11 stands allowed.

Claims 1, 7-10 and 12 stand rejected under 35 U.S.C. 103(a) as being unpatentable over either Milojevic et al. (US 5,762,548) or Josefsson (UK patent app. 2 124 752A) in view of Tong, et al. (US 6,146,264). The Examiner states that it would be obvious to one having ordinary skill in the art at the time the invention was made to provide the paint booth of Milojevic et al. or the United Kingdom patent with an airflow detector, as taught by Tong et al. in order to control cross flow.

Claims 2-6 stand rejected under 35 U.S.C. 103(a) as being unpatentable over either Milojevic et al. or Josefsson as applied to Claim 1, and further in view of Tong et al. (US 6,139,421). The Examiner states that Milojevic or Josefsson disclose the claimed invention except for the variable density filter media, that Tong et al. ('421) teaches that it is known to provide a paint booth with variable density filter media, and that it would be obvious to one having ordinary skill in the art at the time the invention was made to provide the paint booth of Milojevic et al. or Josefsson with variable density filter media as taught by Tong ('421) in order to promote uniform flow.

In response to the first office action, applicant amended Claims 1 and 12 to add three further limitations: first, to add that the claimed system dynamically adjusts the velocity of air from the secondary plenum based on continuous real-time measurements of data inputs including air velocity; second, to claim that the air velocity measuring device measures the velocity of the contiguous linear airflow between the secondary plenum outlet and the workpiece, and third, that the secondary plenum is enclosed within the primary plenum.

I. CLAIMS 1-10 AND 12 SHOULD BE ALLOWED BECAUSE THEY INCORPORATE NOVEL AND NON-OBVIOUS LIMITATIONS.

Applicant respectfully traverses these rejections and requests that the Examiner reconsider Claims 1, 7-10 and 12, as amended, in view of these remarks, and that they be passed to issue as amended.

A. Dynamic Measurement and Control of Airstream Impacting Workpiece is New and Non-Obvious.

Applicant emphasizes that his claimed invention utilizes dynamic adjustment of airflow in real time, and directs the examiner's attention to his amendments to claim 1 and claim 12 which are expressly limited to systems or methods that employ dynamic real-time adjustment of airflow. Neither Milojevic (US 5,762,548) nor the other cited references teach or suggest dynamic real-time adjustment of airflow. Prior to applicant's invention, measurement and adjustment of airflow was typically performed iteratively. Adjusting a system to achieve desired airflow while maintaining a "balanced" system typically required substantial time and labor, yet yielded imprecise results when environmental conditions changed.

Further, nothing in the prior art taught or suggested measuring air velocity after the air exits the plenum outlet and near the paint spray applicator, in the same airstream that impacts the workpiece surface. Rather, the prior art taught one to measure and control air pressure in a given portion of the paint booth, or to measure and control the volume of air entering a portion of a paintbooth. *See, e.g.*, Josefsson (UK 2 124 752) page 2 lines 44-54 (describing air flow valves to regulate pressure in different portions of the booth); Milojevic ('548) claims 1 and 9 (claiming a method of regulating the quantity of air flowing into a supply chamber). Thus Milojevic installed an air volume measuring means in ductwork ahead of – i.e., before – an aperture with regulating flaps to control inflowing air volume. *See* Milojevic at column 6 lines 15-19, 37-39. The methods taught by these references were not well suited to accommodate changes in temperature, humidity, and sudden air pressure changes that are routinely encountered in practice.

Applicant's invention is novel because it measures and dynamically controls the velocity of the air near the paint spray applicator within the airstream that impacts the workpiece surface. In contrast, Tong ('264) deals primarily with controlling cross flows of air between adjacent paint booth chambers that result from pressure imbalances between chambers. The '264 patent

discloses a closed-loop airflow system to control the cross flow of air throughout an entire multiple-chamber paint booth. The '264 patent discloses and claims using an anemometer to measure velocity along two axes to facilitate production of desired "target" velocities of 1) down flowing air at the abutment between chambers, and 2) cross flowing air between chambers at multiple locations within a paint booth system to create an "air curtain" between adjacent chambers. Tong ('264) at columns 5 and 6 and Claim 2.

Applicant's invention is not obvious because it combines continuous dynamic adjustment of air velocity with a capability to measure and control downdraft velocity near the workpiece surface. Applicant's claimed system measures and controls airflow in a completely different region of the paintbooth than the Tong ('264) patent, and produces superior results compared to the measurement and control methods taught by the prior art. The examiner's attention is directed to the amendments to claim 1 and claim 12, which specify that the airflow velocity detector is located between the secondary plenum outlet and the workpiece surface.

B. Configuring a Paintbooth System to Enclose a Secondary Plenum within a Primary Plenum Is New and Non-Obvious.

The examiner's attention is directed to the amendments of claim 1 and claim 12 that limit said claims to a secondary plenum outlet that is enclosed within a primary plenum. Contrary to the examiner's statement at page 4 of the final office action, neither the Josefsson patent nor the Milojevic patent reads on applicant's claims with this limitation added. It was not obvious from the prior art to enclose a secondary plenum within the primary plenum, in large part because the functionality of this configuration depends on applicant's other novel feature: installing variable density filter media to assure that the average unit air density of filter media extending across the primary plenum is greater than the average filter unit density across the secondary plenum outlet. See specification 16 and claim 3.

II. APPLICANT'S "ADAPTED TO" CLAUSES PERMISSIBLY DESCRIBE FUNCTION. THEY ARE NOT INTENDED TO DIFFERENTIATE HIS CLAIMS FROM THE PRIOR ART.

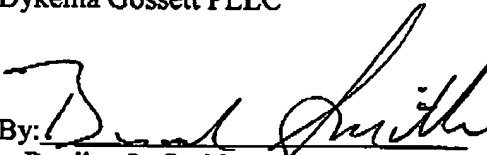
Applicant does not understand the examiner's objection that applicant's "adapted to . . ." clauses do not distinguish his claimed features from the prior art in terms of structure rather than function. Final Office Action page 4. The limitations in claim 1 that employ the "adapted to"

clause describe a paint booth having more than one plenum outlet and an airflow detector capable of sending a velocity signal, e.g., an anemometer. The limitations containing the "adapted to" clause, although necessary to applicant's claims, do not differentiate his claims from the prior art, nor are they intended to. Indeed, the limitations using the "adapted to" language are not the subject of the examiner's obviousness objections under 35 U.S.C. §103(a).

CONCLUSION

For these reasons, and for the reasons stated in applicant's December 2004 response to the first office action, claims 1-10 and 12 are in condition for allowance and should be passed to issue. Such action is earnestly solicited.

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CERTIFICATE OF MAILING

I hereby certify that the enclosed Amendment is being faxed via (703) 872-9306 to Mail Stop Amendment, Commissioner of Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this 28th day of March, 2005.


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